



User's Guide to the Decision Support System for Map Projections

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June 2003

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Background:

Research geographers and applications programmers at the Mid-Continent Mapping Center developed this prototype Decision Support System (DSS) for selecting an optimum projection considering various factors, such as pixel sizes, areal extent, number of categories, spatial pattern of categories, resampling methods, and error correction methods. The design and implementation is a Web-based DSS for map projection selection. We designed the DSS for map projections of small-scale datasets.

The design includes an interactive interface to solicit information from a user and guide the user to the selection of an appropriate projection based on the input. The DSS poses questions interactively, in which the choice of the user determines the path in a decision tree to drive to a solution. The initial choice is among global, continental, or regional area of coverage. The second important choice is among the preservation of shape or area, or simply a compromise (such as the Robinson projection, which is neither conformal or equal-area) (Usery *et al.*, 2002).

Before You Begin:

In order to use the DSS, please make sure that you are running the Java Run-Time Environment Version 1.4.03 or later.

Using the DSS

The DSS is a web-based application and can be found at the following web address:

<http://isis.er.usgs.gov/research/DSSMain/DSSApplet.html>

Once the website has been loaded, the following will be seen (Figure 1).

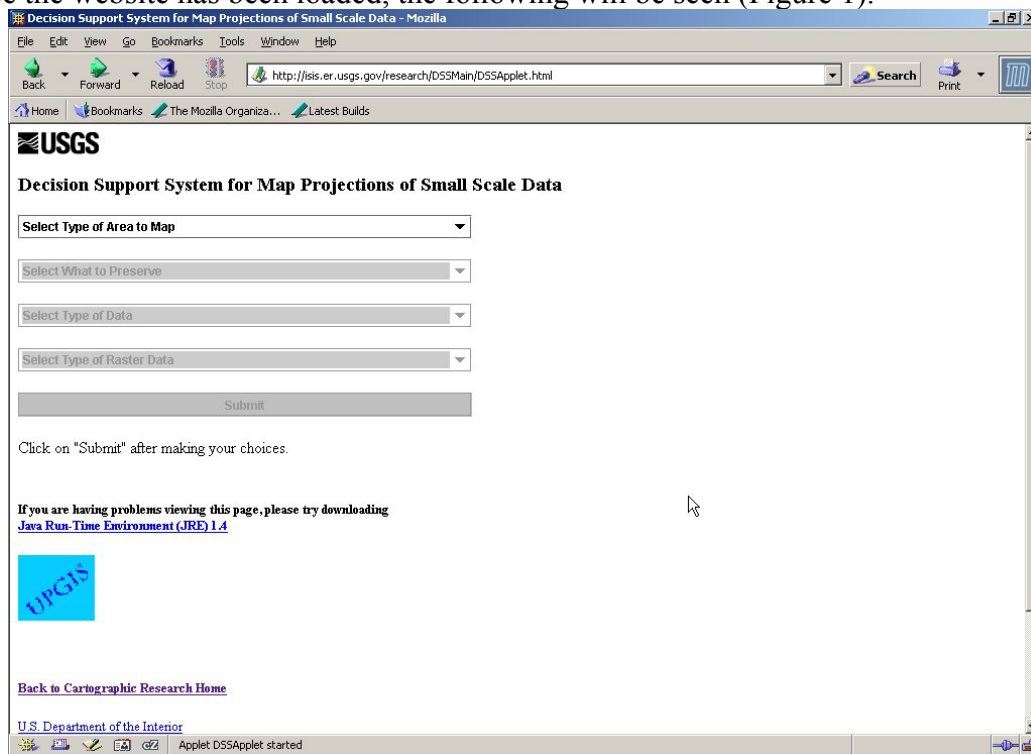


Figure 1. Startup Screen

The DSS will base decisions on what type of Area you wish to map. The following steps will help you to make a proper decision.

1) For **Global** Maps:

- a. Select **Global** from the **Select Type of Area to Map** drop down menu (Figure 2).

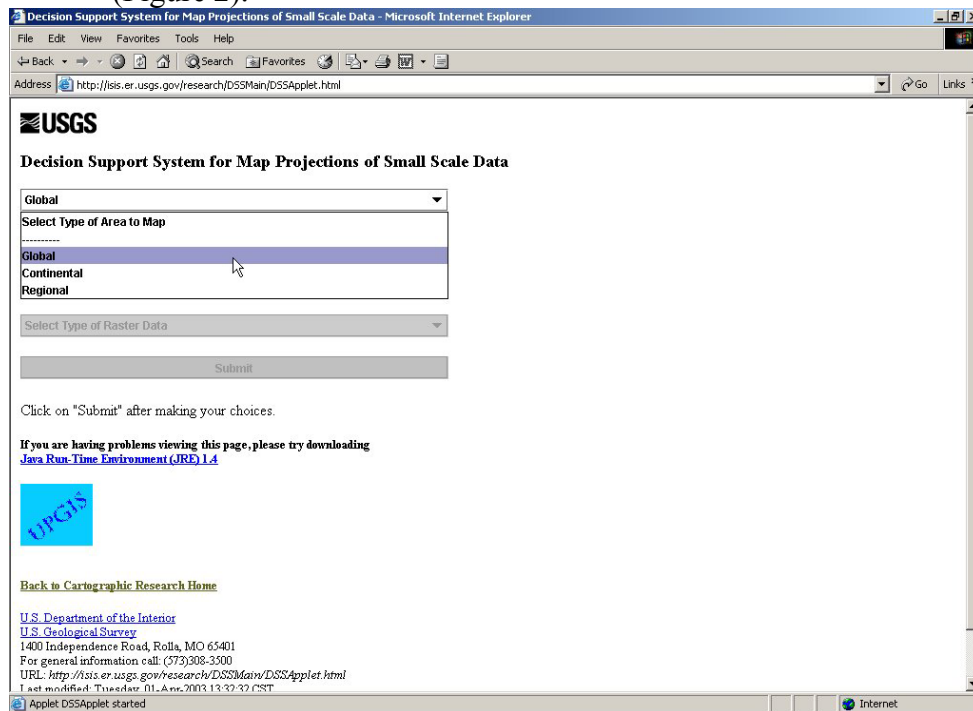


Figure 2. Type Drop Down Menu

- b. Select what aspect you would like to preserve from the **Select What to Preserve** drop down menu (Figure 3).

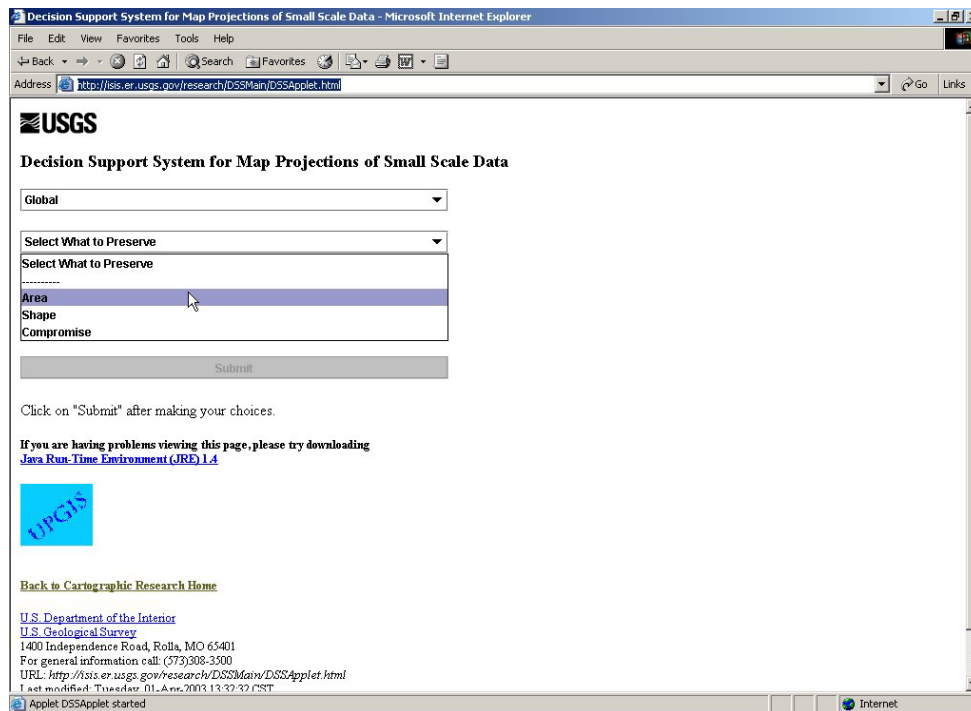


Figure 3. Preservation Drop Down Menu

- c. Select the type of Data you have from the *Select Type of Data* drop down menu (Figure 4).

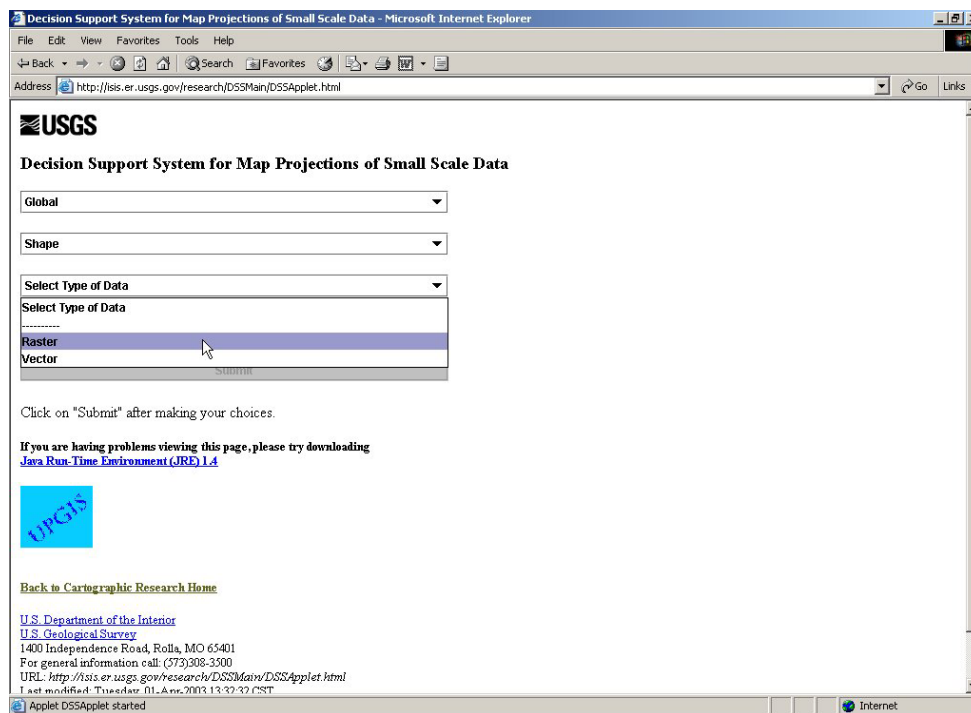


Figure 4. Data Drop Down Menu

- d. If **Vector** was chosen as your data type, click on **Submit**, otherwise, select your type of Raster Data from the **Select Type of Raster Data** drop down menu (Figure 5).

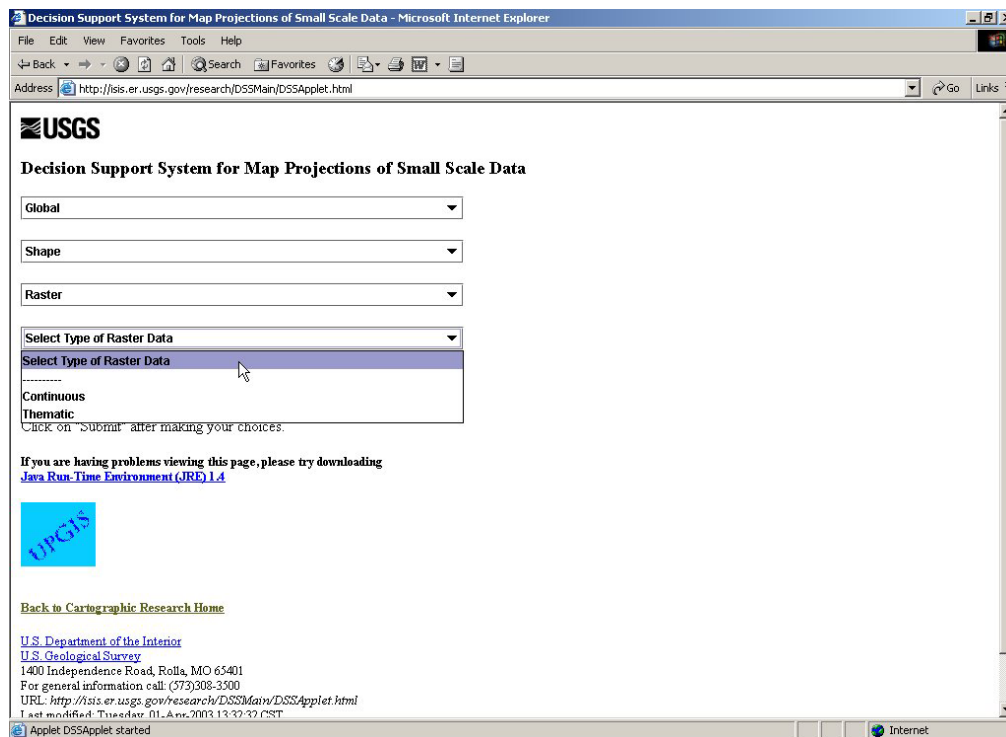


Figure 5. Raster Data Type Drop Down

- e. Click the **Submit Button** to see your suggested projections
- 2) For **Continental** Maps:
- Select **Continental** from the **Select Type of Area to Map** drop down menu (Figure 2).
 - Make your **Preservation**, **Data**, and **Data Type Selections** at the bottom of the Continental Selector Page (Figure 6)

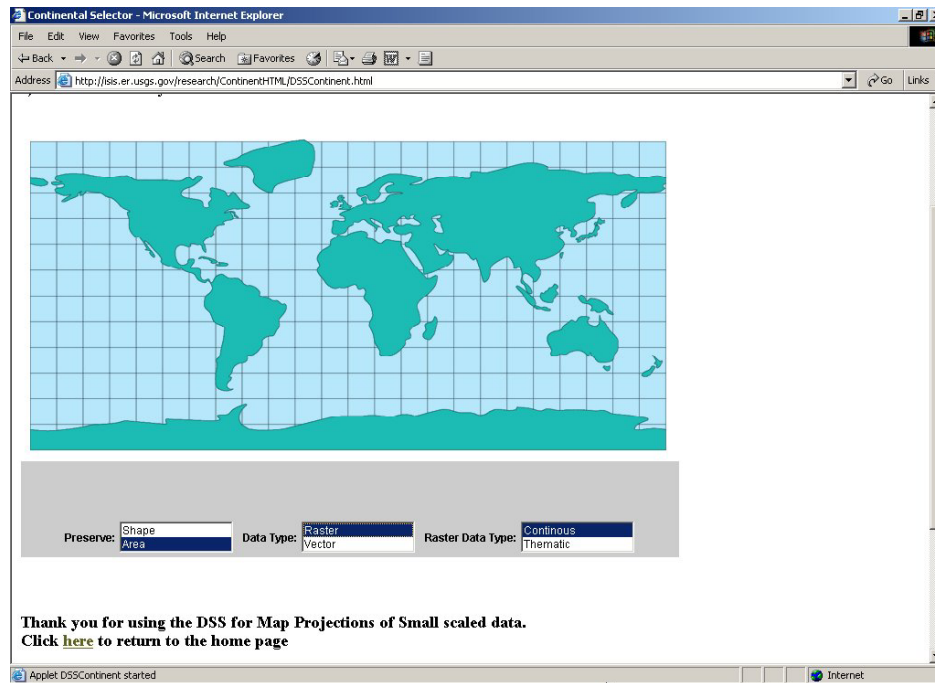


Figure 6. Continental Selector Page

- c. *Click* on the continent in question to see your suggested projections
- 3) For *Regional* Maps:
- a. Select *Regional* from the *Select Type of Area to Map* drop down menu (Figure 2).
 - b. Make your *Preservation*, *Data*, and *Data Type Selections* at the bottom of the Regional Selector Page (Figure 7).

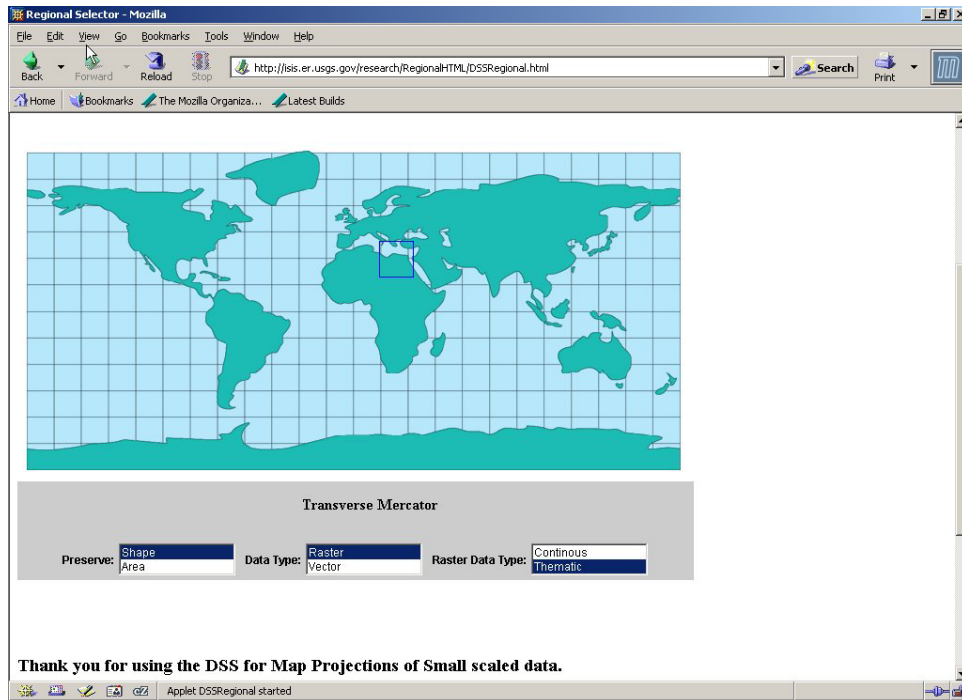


Figure 7. Regional Selector Page

- c. *Resize* the *Selector Box* by clicking on its edges and dragging until the size is correct (Figure 8).

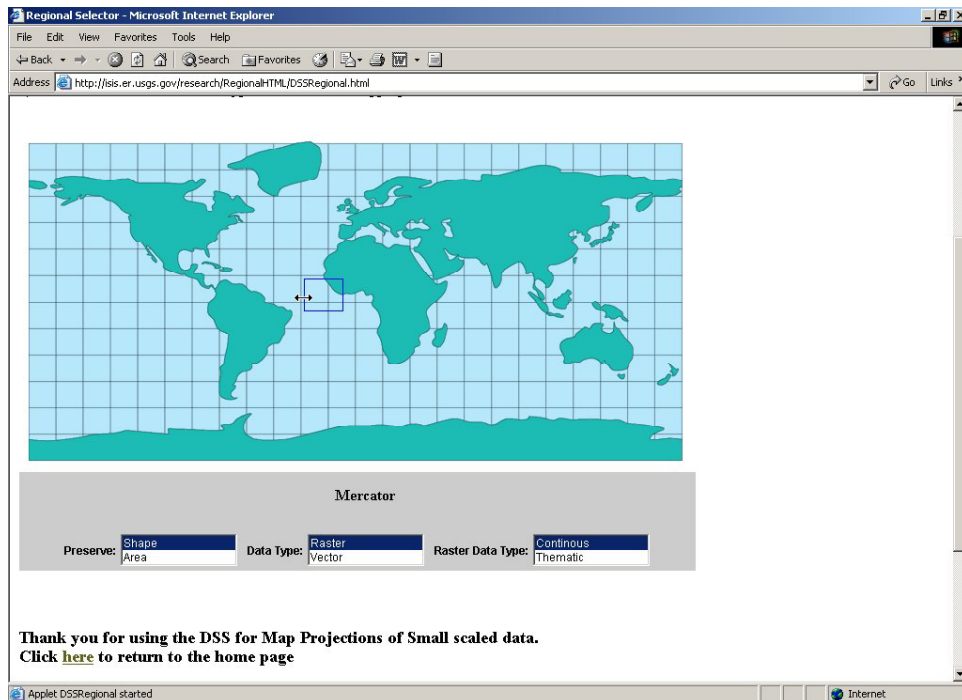


Figure 8. Resizing Selector Box

- d. *Move* the *Selector Box* by clicking in the middle of the box and dragging it to the correct position on the map (Figure 9).

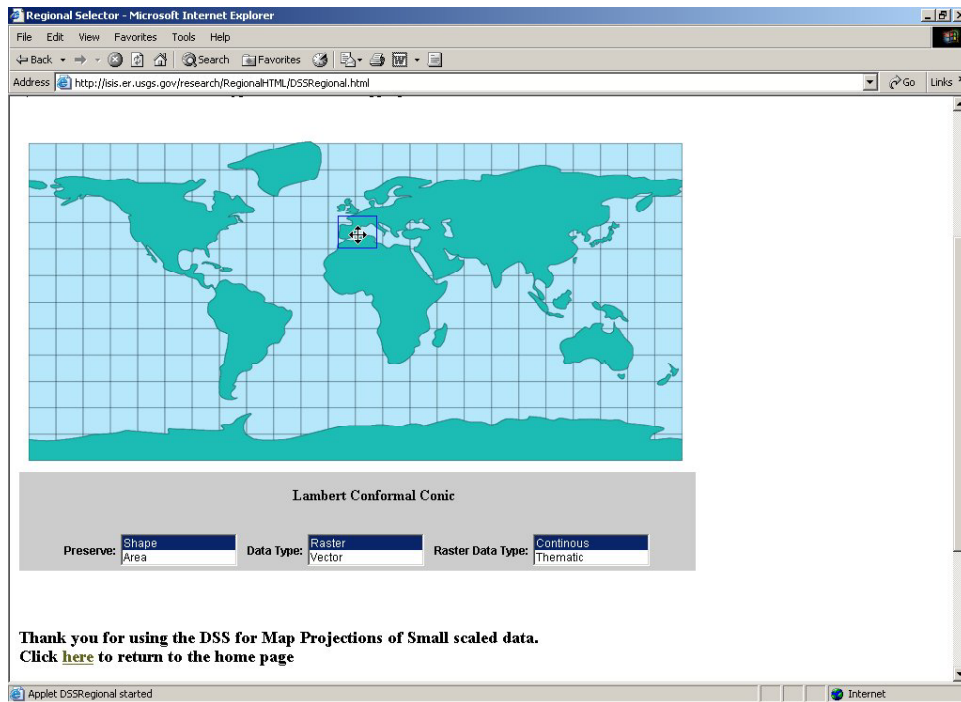


Figure 9. Moving Selector Box

- e. Your Suggested Projection is shown in Real-Time on the page

Reference

Usery, E.L., Finn, M.P., Scheidt, D., (2002) Projecting Global Raster Databases, *Proceedings Symposium on Geospatial Theory, Processing and Applications*, Ottawa, Canada. International Society for Photogrammetry and Remote Sensing.